What is claimed is:

1. A method of automatically correcting dust artifact regions within images acquired by a digital image acquisition system including a digital camera with a lens assembly, comprising:

(a) determining probabilities that certain pixels within multiple digitally-acquired images correspond to one or more dust artifact regions;

(b) forming a statistical dust map including mapped dust artifact regions based on the dust artifact determining;

(c) separating said mapped dust artifact regions into aura regions partially obscured by dust and shadow regions substantially obscured by dust inside said aura regions; and

(d) correcting digital data corresponding to pixels within one or more digitally-acquired images including dust artifact regions separated into aura regions and shadow regions correlated with mapped aura and shadow regions of the statistical dust map.

2. The method of claim 1, said dust artifact region probability determining including separating suspected dust artifact regions into aura regions and shadow regions, and determining separate probabilities whether said aura regions and said shadow regions of said suspected dust artifact regions in fact correspond to dust artifact regions within said images.

3. The method of claim 2, said determining with respect to a shadow region being based on an extracted parameter-dependent shadow region analysis, wherein the shadow region analysis presumes that certain regions on a sensor of the digital image acquisition device are fully obscured by said dust.

4. The method of claim 3, wherein the shadow region analysis includes calculating effects of differences in values of the one or more extracted parameters in different images on dust artifact illumination, shape, position, reflection or transmission properties, distance of dust to the sensor, aperture, exit pupil, or focal length, or combinations thereof.

5. The method of claim 4, said different images having been acquired of different objects.

6. The method of claim 2, said determining with respect to an aura region being based on an extracted parameter-dependent aura region analysis, wherein the aura region analysis presumes that certain regions on a of the digital image acquisition device are partially obscured by said dust.

7. The method of claim 6, wherein said aura region analysis includes calculating effects of differences in values of the one or more extracted parameters in different images on dust artifact illumination, shape, position, reflection or transmission properties, distance of dust to the sensor, aperture, exit pupil, or focal length, or combinations thereof.

8. The method of claim 7, said different images having been acquired of different objects.

9. The method of claim 2, the correcting operation comprising in-painting or restoration, or both.

10. The method of claim 9, said correcting including in-painting the shadow region.

11. The method of claim 10, said in-painting including determining and applying shadow region correction spectral information based on spectral information obtained from pixels outside said shadow region.

12. The method of claim 9, said correcting including restoration of the aura region.

13. The method of claim 12, said restoration including determining and applying aura region correction spectral information based on spectral information obtained from pixels within said aura region.

14. The method of claim 1, the correcting operation including calculating said aura region and said shadow region.

15. The method of claim 14, the correcting operation further including correcting a shadow region approximately based on the correcting of the aura region.

16. The method of claim 1, wherein said dust artifact region probability determining is based at least in part on a comparison of suspected dust artifact regions within two or more images.

17. The method of claim 16, wherein said comparison comprises a first comparison of said shadow regions and a second comparison of said aura regions.

18. The method of claim 17, wherein said determining further comprises statistically combining probabilities based on said each of said comparisons of said shadow regions and of said aura regions.

19. The method of claim 1, wherein said dust artifact region probability determining is based at least in part on a comparison of suspected dust artifact regions within images with predetermined characteristics indicative of the presence of a dust artifact region.

20. The method of claim 19, wherein said comparison comprises a first comparison of said shadow regions and a second comparison of said aura regions.

21. The method of claim 20, wherein said determining further comprises statistically combining probabilities based on said each of said comparisons of said shadow regions and of said aura regions.